PATENT CLAIMS

1. A method of generating pressure pulses through a pressure pulse transmitting body (3) that is displaceably arranged in a chamber (2), by which the flow of pressure fluid into and out of said chamber (2) is controlled electromechanically for the purpose of accomplishing pressure changes for the displacement of the body of a pressure pulse generator that comprises:

- said chamber (2), divided by said body (3) into a first and a second part (4, 5),
- a first spring and a second spring (16, 17), arranged to displace said body (3) in a first direction and a second direction respectively in said chamber,
- a first conduit (11) leading between a high pressure source (9) and a first part (4) of the chamber (2),
- wherein the pressure fluid in the first part (4) of the chamber acts on said body (3) for displacing the latter in the second direction, and
- means (13, 14) for opening/interrupting a communication between the first part (4) of the chamber (2) and the high pressure source through the first conduit (11),

characterized in that

- the communication between the first part (4) of the chamber (2) and the high pressure source (9) is kept interrupted during a displacement of the body (3) from a predetermined starting position in the first direction by means of a triggering of the first spring (16),
- and that the communication between the first part (4) of the chamber (2) and the high pressure source (9) is kept open while the body (3) is displaced back in the second displacement direction to said starting position, whereby a biasing of the first spring (16) is accomplished.

2. A method according to claim 1, **characterized** in that the communication between the first part (4) of the chamber (2) and the high pressure (9) is opened during a period sufficient for a complete returning of said body (3) to the starting position through the action of the pressure fluid and the second spring (17).

3. A method according to claim 1 or 2, **characterized** in that the communication between the first part (4) of the chamber (2) and the high pressure source (9) is opened during a final stage of the displacement in the second direction, by which the action of the second spring (17) alone is insufficient for a complete returning of said body (3) to the starting position.

4. A method according to anyone of claims 1-3, **characterized** in that the communication between the first part (4) of the chamber (2) and the high pressure source (9) is kept open for a period during which a retention of the body (3) in the starting position is requested.

5. A method according to anyone of claims 1-4, **characterized** in that the pressure pulse generator comprises a conduit (12) that leads between the first part (4) of the chamber (2) and a low pressure source (10), and means for opening/interrupting the communication through this conduit (12), and that said communication is kept interrupted when the communication between the high pressure source (9) and the first part (4) of the chamber (2) is kept open.

6. A method according to anyone of claims 1-5, **characterized** in that the pressure pulse generator comprises a conduit (25, 28) for a communication between a low pressure source (10) and the second part (5) of the chamber (2), and means (27) for opening/interrupting this communication, and that the communication is interrupted when the

pressure pulse transmitting body (3) has reached an end position, opposed to the starting position, for the purpose of locking the body (3) in its end position.

7. A pressure pulse generator comprising

- a pressure pulse transmitting body (3) which is displaceably arranged in a chamber (2),
- said chamber (2), divided by said body (3) into a first and a second part (4, 5),
- a first spring and a second spring (16, 17), arranged to displace said body (3) in a first direction and a second direction respectively in said chamber,
- a first conduit (11) leading between a high pressure source (9) and a first part (4) of the chamber (2),
- wherein the pressure fluid in the first part (4) of the chamber acts on said body (3) for displacing the latter in the second direction, and
- means (13, 14) for opening/interrupting a communication between the first part (4) of the chamber (2) and the high pressure source through the first conduit (11),

characterized in that

- the means for opening/interrupting the communication between the first part (4) of the chamber (2) and the high pressure source (9) are arranged to interrupt the communication therebetween while the body (3) is displaced in the first direction from a predetermined starting position through a triggering of the first spring (16), and arranged to
- keep the communication between the first part (4) of the chamber (2) and the high pressure source (9) open while the body (3) is displaced in the second displacement direction back to said starting position, whereby a biasing of the first spring (16) is accomplished.

8. A pressure pulse generator according to claim 7, **characterized** in that it comprises a conduit (12) that leads between the first part (4) of the chamber (2) and a low pressure source (10), and means for opening/interrupting the communication through this conduit (12).

9. A pressure pulse generator according to anyone of claims 7 or 8, **characterized** in that it comprises a conduit (25, 28) for a communication between a low pressure source (10) and the second part (5) of the chamber (2), and means (27) for opening/interrupting this communication.

10. A pressure pulse generator according to anyone of claims 7-9, **characterized** in that the means (13, 14) for opening/interrupting the communication in the conduit between the first part (4) of the chamber (2) and the high pressure source (9) comprises a solenoid-activated valve body (14).

11. A pressure pulse generator according to anyone of claims 7-10, **characterized** in that the means (13, 14) for opening/interrupting the communication in the conduit between the first part (4) of the chamber (2) and the low pressure source (10) comprises a solenoid-activated valve body (14).

12. A pressure pulse generator according to anyone of claims 7-11, **characterized** in that the means (26) for opening/interrupting the communication between the second part (5) of the chamber (2) and the low pressure source (10) comprises a solenoid-activated valve body.

13. A pressure pulse generator according to anyone of claims 7-12, **characterized** in that the first spring (16) is a pressure fluid spring.

14. A pressure pulse generator according to anyone of claims 7-12, **characterized** in that the first spring (16) is a mechanical spring.

15. A pressure pulse generator according to anyone of claims 7-14, **characterized** in that it comprises a control unit with a computer program for a control in accordance with anyone of claims 1-6.

16. A piston engine with a valve for an introduction or discharge of air or an air/fuel mixture in relation to a combustion chamber, **characterized** in that it comprises a pressure pulse generator according to anyone of claims 7-15.

17. A piston engine with a piston for the variation of the cylinder volume of a combustion chamber in a combustion engine, said piston being arranged displaceably back and forth in a cylinder that is connected with the combustion chamber, **characterized** in that it comprises a pressure pulse generator according to anyone of claims 7-15 for driving said piston.